WHAT IS CLAIMED IS:

1. A linear actuator with dual-direction self-locking mechanism including:

a power unit serving to output torque;

a transmission device having two engaging members for serving to transmitting the torque of the power unit;

an actuating unit having a coupling portion, a screw shaft and a screw nut, the coupling portion employed to engage with the two engaging members for turning the torque into linear motion, so as to drive a load to move linearly; and

a self-locking mechanism having a spring for cooperating with the transmission device and the actuating unit, so as to have a self-locking function, the spring being mounted on the outer side of the engaging members, both ends of the spring being forming with a hooked end, on the outer side of the spring a sleeve mounted, on the internal surface of the sleeve formed with plural grooves, such that the self-locking mechanism can be possessed with dual direction self-locking ability without producing extra load.

2. The linear actuator with dual-direction self-locking mechanism as claimed in claim 1, wherein one of the two engaging members is provided with a front notch and another engaging member is provided with a rear notch for respectively engaging with the hooked ends of the spring, with which to firmly fix the spring.

3. The linear actuator with dual-direction self-locking mechanism as claimed in claim 1, wherein on the coupling portion of the actuating unit is provided with longitudinal keys for engaging with the engaging members of the transmission device, and thus the coupling portion can be driven by the transmission device.

4. The linear actuator with dual-direction self-locking mechanism as claimed in claim 1, wherein when direction of dynamic force's transmission is caused by the load for effecting rotation of the actuating unit, the coupling portion will push a hooked end of the spring to rotate for making the spring expand outward to cause a friction against the internal surface of the sleeve, and thus the linear actuator is locked.

5. The linear actuator with dual-direction self-locking mechanism as claimed in claim 1, wherein when direction of dynamic force's transmission is transmitted through the power unit to the transmission device and then to the actuating unit, the engaging members will push a hooked end of the spring to make the spring shrink back and unlock the linear actuator, the engaging members are able to drive the coupling portion and the spring to rotate together, so as to enable the linear actuator to drive the load to move linearly.